

**POLARIZATION DIVISION DUPLEXING WITH CROSS POLARIZATION
INTERFERENCE CANCELLER**

ABSTRACT OF THE DISCLOSURE

5

[0043] A telecommunication system includes a transmitter configured to modulate a forward link RF carrier with a first set of data; a receiver configured to demodulate a second set of data from a return link RF carrier; an orthomode transducer having two linear ports and a circular waveguide port, where one of the linear ports is connected as an input from the transmitter and another linear port is simultaneously connected as an output to the receiver; an antenna; and a linear-to-circular polarizer connected to the circular waveguide port and connected to the antenna, where the linear-to-circular polarizer is configured so that a first linear polarization at the circular waveguide port results in a first circular polarization at the antenna and a second circular polarization at the antenna results in a second linear polarization at the circular waveguide port.